ONTARIO MINISTRY OF ENVIRONMENT
36936000023411

OPERATING SUMMARY

1973

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MINISTRY OF THE
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TD
367
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1973
MOE

PICKERING

WATER POLLUTION CONTROL PLANT

TD
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Pickering Village : water
pollution control plant.

81553

Ontario

MINISTRY OF THE ENVIRONMENT

MINISTER
Honourable William G. Newman

DEPUTY MINISTER
E. Biggs

ASSISTANT DEPUTY MINISTER
REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, CENTRAL REGION
P. Cockburn

MANAGER, UTILITY OPERATIONS
A. Thomas

PICKERING VILLAGE

WATER POLLUTION CONTROL PLANT

MINISTRY OF THE ENVIRONMENT

1973 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

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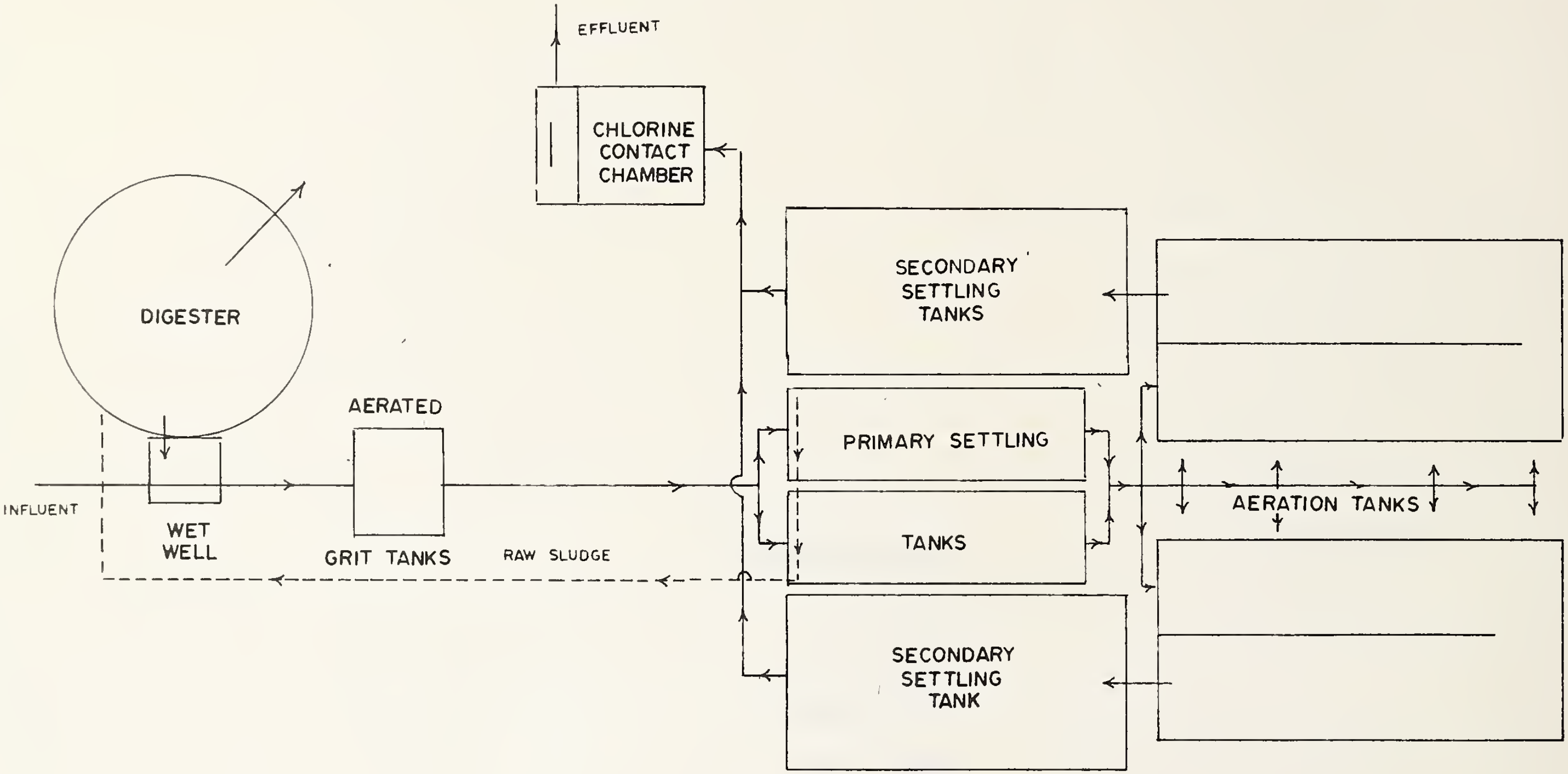
CONTENTS

Title Page 1
Flow Diagram 4
Design Data 5
Process Data 6



VILLAGE OF PICKERING WPCP

DESIGN DATA

PROJECT		Village of Pickering WPCP
PROJECT NO.		1-0015-66
TREATMENT	Con.	Secondary
DESIGN FLOW		0.40 mgd
BOD	- Raw Sewage	220 mg/l
	- Removal	90-95%
SS	- Raw Sewage	250 mg/l
	- Removal	90-95%

GRIT REMOVAL

Type: Aerated with airlift
Size: One 12' x 14' x 10' (eff. depth)
Volume: 1680 ft^3 or 10,500 gal
Detention: 38 minutes

COMMINUTION

Bar Screen – on by-pass

PRIMARY SEDIMENTATION

Size: Two 20' x 12' x12'6" (avg. depth)
Volume: 6000 ft^3 or 37,400 gal
Detention: 2.25 hours
Loading: Surface 795 gpd/ft^2 Weir

AERATION

Type: Diffused air, two-pass
Size: Two 35' x 2 x 12' x 12'
Volume: 20,000 ft^3 or 125,000 gal
Detention: 7.5 hours
Diffusers: Ceramic Tubes (17 per pass)

SECONDARY SEDIMENTATION

Size: Two 25' x 12' x 11'6" (avg)
Volume: 6900 ft^3 or 43,000 gal
Detention: 2.58 hr
Loading: Surface 666 gpd/ft^2
Weir 4160 gpd/ft

CHLORINE CONTACT CHAMBER

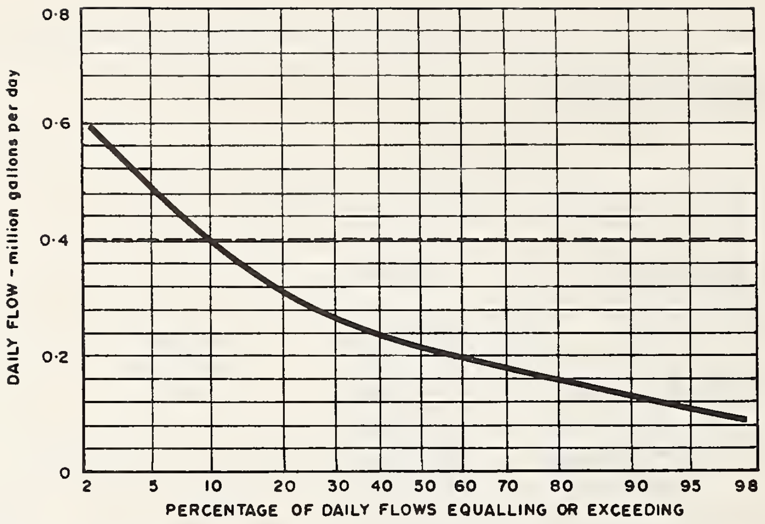
Size: 4 passes 12' x 5'4" x 10'9"
Volume: 2750 ft^3 or 17,200 gal
Detention: 62 minutes

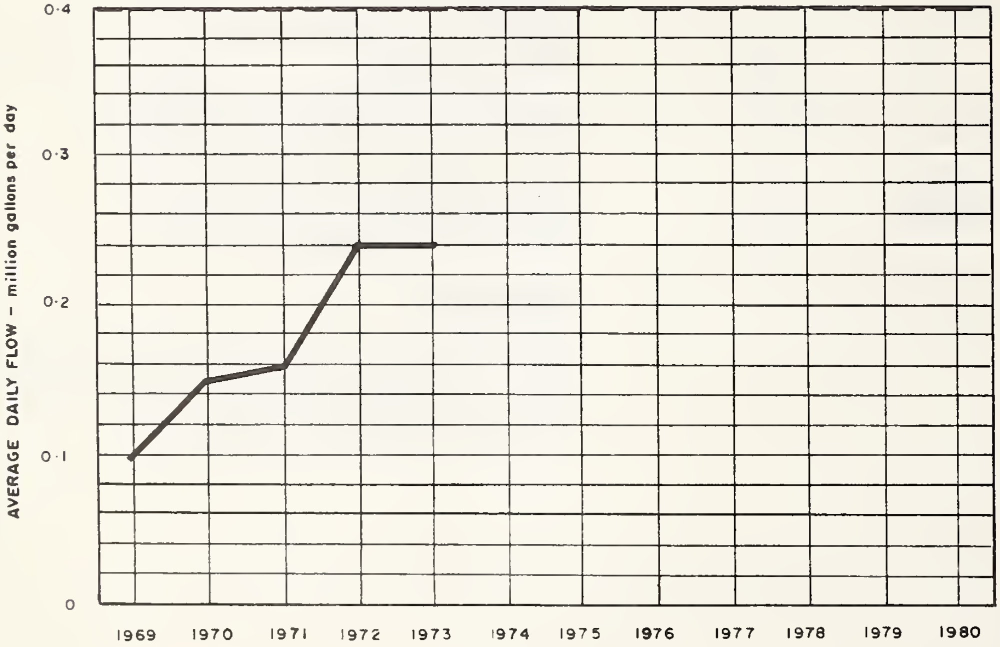
DIGESTION

Single Stage, gas mixed, fixed concrete roof
Size: one 28' dia x 24' swd
Volume: 15,200 ft^3 or 95,000 gal

PROCESS DATA

FLOWS



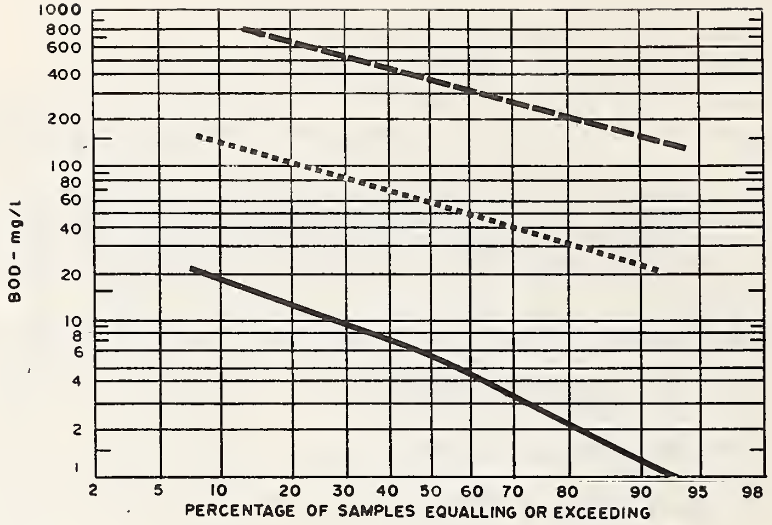


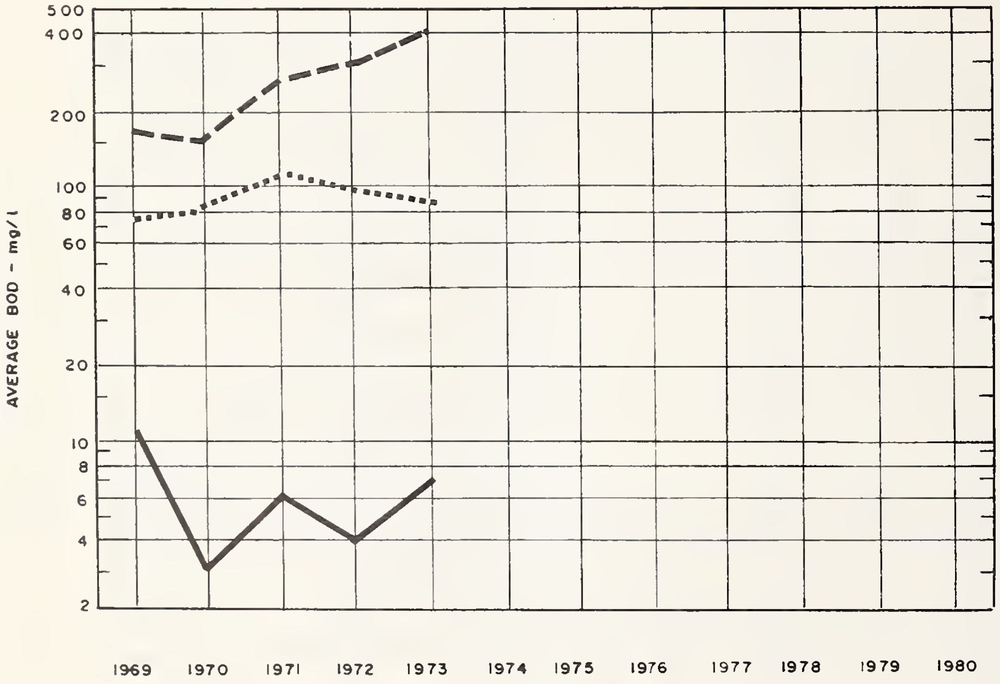
DESIGN CAPACITY – – – – – – –

PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10^3 pounds			%	10^3 pounds		
JAN	10.4	0.33	0.63	190	2	89	19	410	9	98	42	12.0	1.0
FEB	7.1	0.26	0.51	600	1	99	43	610	8	99	44	32.0	0.8
MAR	12.3	0.31	0.61	260	7	97	31	720	7	99	88	15.0	0.8
APR	11.3	0.38	0.74	800	4	99	90	210	9	96	23	29.0	1.2
MAY	10.1	0.32	0.44	400	1	98	79	790	9	99	78	11.0	0.5
JUNE	6.9	0.23	0.36	600	10	98	40	1130	18	98	76	58.0	1.2
JULY	3.2	0.11	0.13					680	8	99	22		
AUG	3.3	0.10	0.15	520	8	98	56	1220	8	99	39	24.0	1.5
SEPT	3.8	0.13	0.15		6			880	7	99	33		
OCT	4.7	0.15	0.24					1010	9	99	47		
NOV	6.0	0.20	0.34	280	9	97	16	890	9	99	52	8.8	1.8
DEC	7.2	0.23	0.58	250	15	94	17	790	34	96	54	17.0	1.9
TOTAL	86.3	-	-	-	-	-		-	-	-	598	-	-
AVG.		0.24	MAXIMUM 0.74	415	7	98	43	780	12	98	50	22.0	1.3
No. of Samples	-	-	-	10	11	-	-	62	63	-	-	10	10

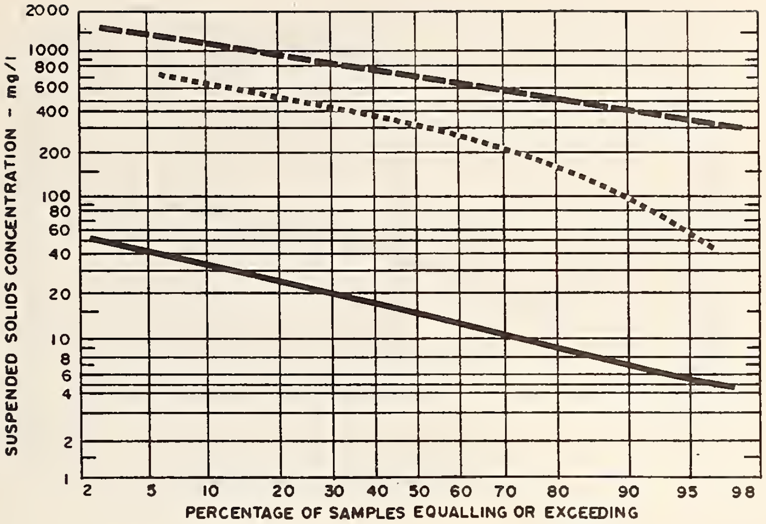
BIOCHEMICAL OXYGEN DEMAND

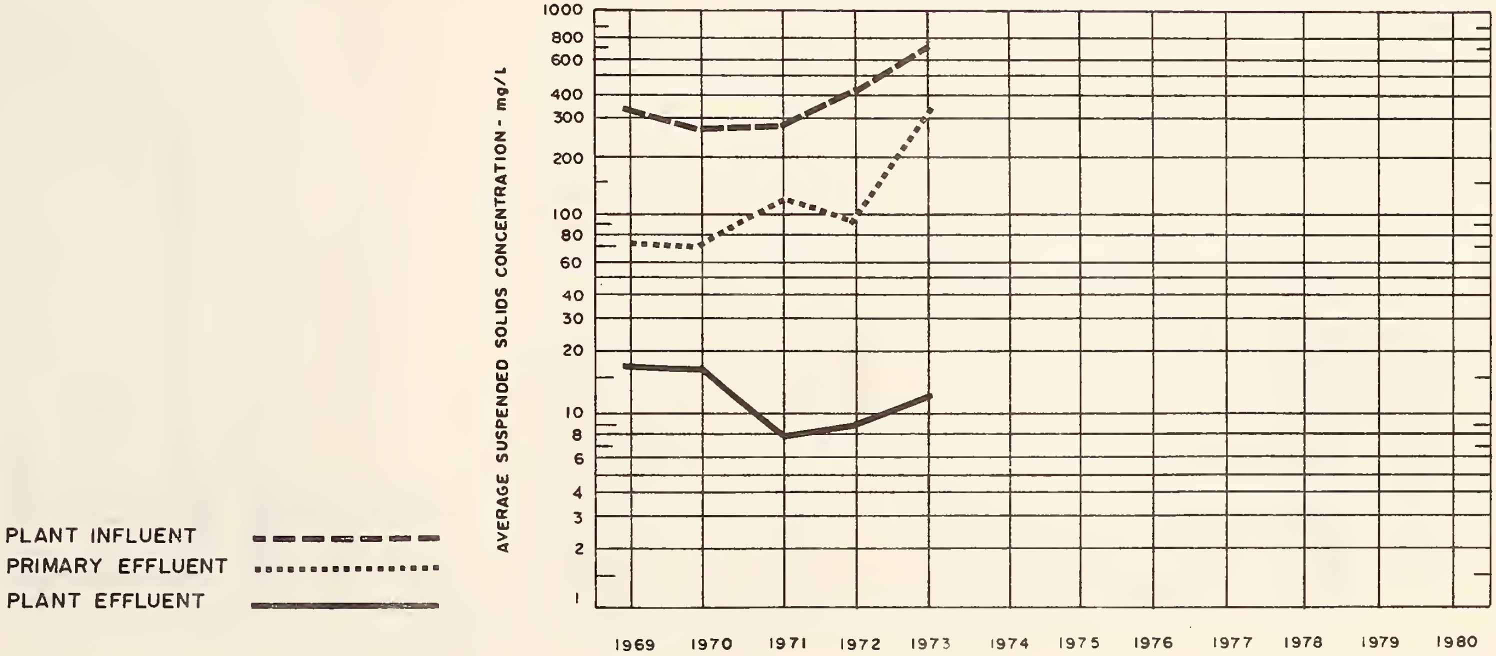




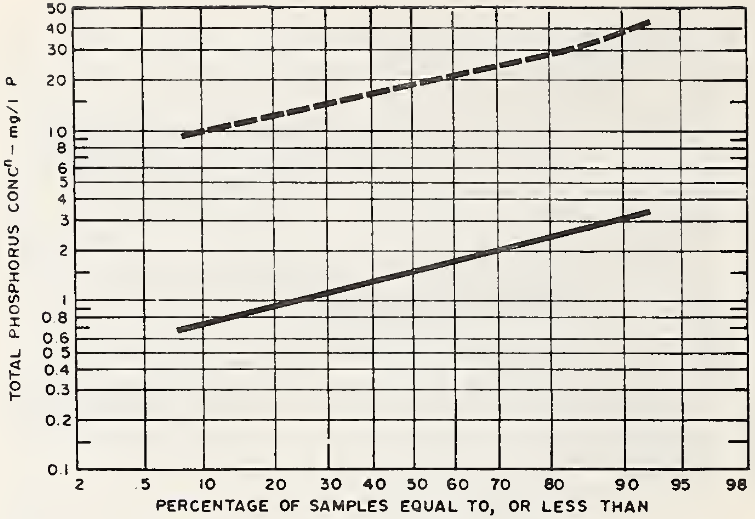
PLANT INFLUENT — — — — — —
PRIMARY EFFLUENT ••••••••••••••••
PLANT EFFLUENT ————————

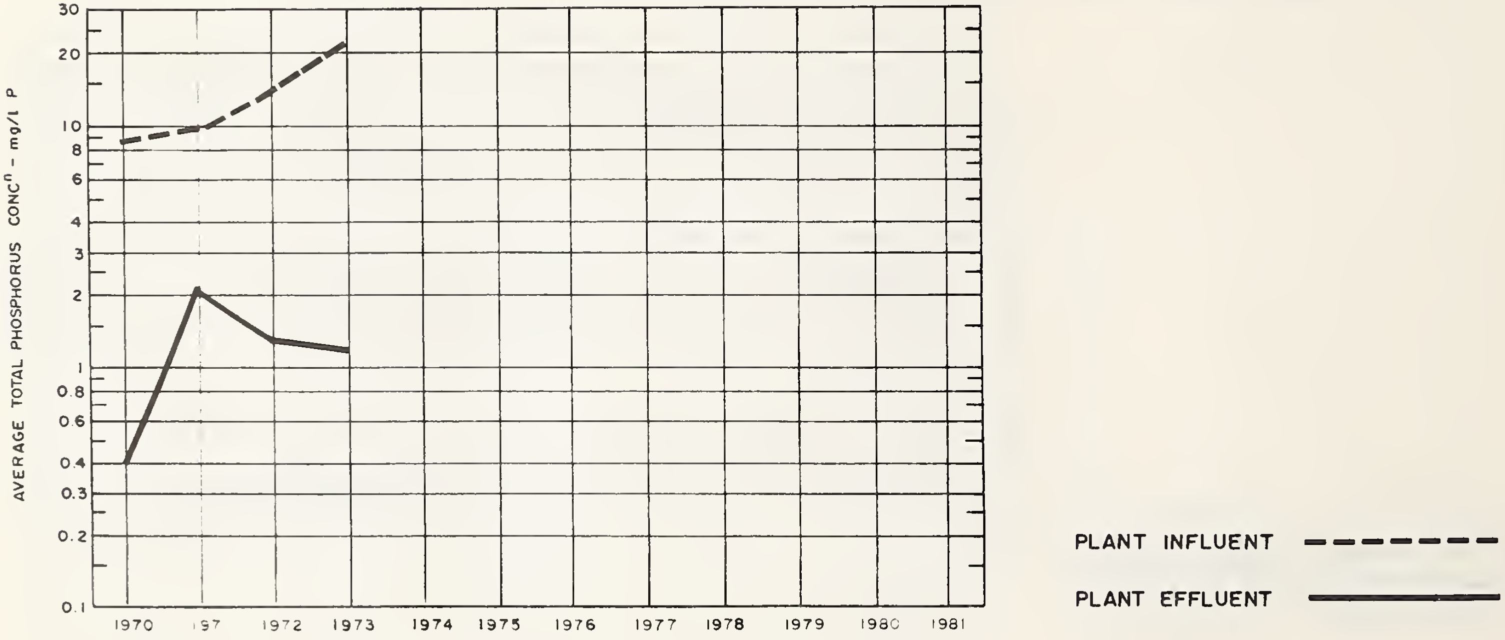
SUSPENDED SOLIDS



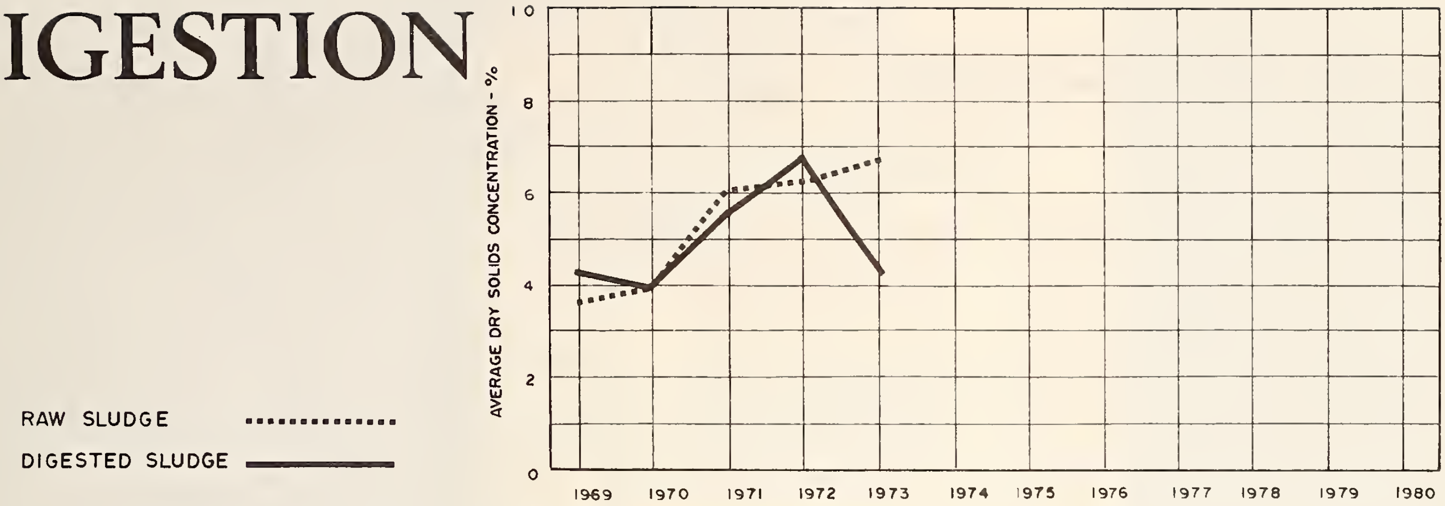


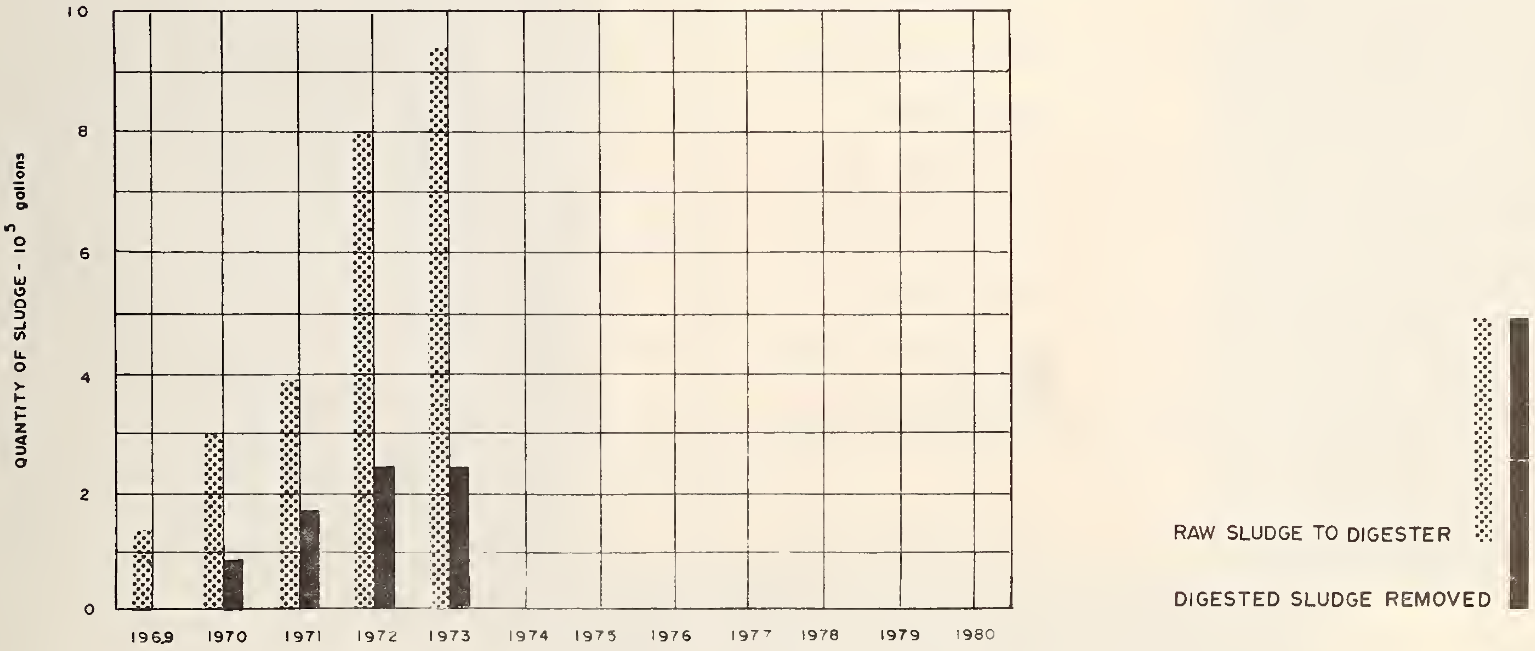
PHOSPHORUS


TOTAL PHOSPHORUS CONC^{n} - mg/l P
50
40
30
20
10
8
6
5
4
3
2
1
0.8
0.6
0.5
0.4
0.3
0.2
0.1
2
5
10
20
30
40
50
60
70
80
90
95
98
PERCENTAGE OF SAMPLES EQUAL TO, OR LESS THAN


AVERAGE TOTAL PHOSPHORUS CONC^{n} - mg/l P
30
20
10
8
6
4
3
2
1
0.8
0.6
0.4
0.3
0.2
0.1
1970
197
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
PLANT INFLUENT
PLANT EFFLUENT

DIGESTION


RAW SLUDGE
DIGESTED SLUDGE
AVERAGE DRY SOLIDS CONCENTRATION - %
10
8
6
4
2
0
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980


QUANTITY OF SLUDGE - 10^5 gallons
10
8
6
4
2
0
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED

TREATMENT DATA

	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
									RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT	
MONTH	QUANTITY REMOVED cubic feet	Cl_2 USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day^{-1}	AIR $\frac{1000\ ft^3}{lb\ BOD}$	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOL. SOLIDS %	T. S. %	AMOUNT HAULED cubic yards
JAN	7	190	1.9	110	170	1500	0.23		75	5.6	85	21.0	7.0	50	0.1	126
FEB	15	170	2.4	100	200	1300	0.16		67	6.8	87	19.0	5.7	52	0.1	112
MAR	26	230	1.9	60	240	1500	0.16		80	6.8	82	21.0	5.2	52	0.1	126
APR	16	260	2.3	110	260	1200	0.34		72	7.0	83	20.0	4.6	49	0.1	119
MAY	25	230	2.3	48	320	1000	0.12		130	6.6	84	21.0	4.2	39	0.1	126
JUNE	19	180	2.7	60	510	1100	0.10		73	7.8	87	20.0	3.5	43	0.1	119
JULY	15	180	5.6		260	1300			68	7.8	80	20.0	5.9		0.1	119
AUG	19	200	6.2	170	310	1200	0.11		74	6.4	87	22.0	4.2		0.1	133
SEPT	16	180	4.6	85	330	1300	0.07		69	5.0	85	19.0	3.1	61	0.1	112
OCT	20	160	3.4		590	1800			74	6.0	86	21.0	3.0		0.1	126
NOV	29	240	4.0	120	450	1700	0.12		73	5.8	81	21.0	2.8	48	0.1	126
DEC	17	250	3.4	24	400	1600	0.03		79	6.9	80	20.0	3.4	48	0.1	119
TOTAL	224	2470	-	-	-	-	-	-	934	-	-	245.0	-	-	-	1463
AVG.	2.6 cu.ft/mil gal	210	2.9	89	340	1400	0.14		78	6.5	84	20.0	4.4	49	0.1	122

MINISTRY OF THE ENVIRONMENT.

WATER POLLUTION CONTROL PLANT
OPERATING SUMMARY.(PICKERING).

1973

DATE	ISSUED TO

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